

ABSTRACT OF THE DISCLOSURE

There is provided an apparatus suited for forming a plated film in fine trenches and plugs for interconnects, and in the openings of a resist formed in the surface of a substrate such as a semiconductor wafer, and for forming bumps (protruding electrodes) on the surface of a semiconductor wafer. The apparatus includes a substrate holder capable of opening and closing for holding a substrate such that the front surface of the substrate is exposed while the backside and the edge thereof are hermetically sealed; a plating tank accommodating a plating liquid in which an anode is immersed; a diaphragm provided in the plating tank and disposed between the anode and the substrate held by the substrate holder; plating liquid circulating systems for circulating the plating liquid to the respective regions of the plating tank separated by the diaphragm; and a deaerating unit disposed in at least one of the plating liquid circulating systems.